GOVERNMENT OF INDIA.

# REVENUE AND AGRICULTURAL DEPARTMENT.

## WEATHER SUMMARY FOR APRIL 1889.

*Simla, the 19th May* 1889.

Hot weather conditions, which are initiated in the month of March, are confirmed and developed during April. The distribution of pressure, which during March is subject to large and sudden fluctuations, sometimes approximating to hot weather conditions and at others reverting suddenly to those characteristic of the cold season, is much more stable and continuous during April. The larger atmospheric storms which in late seasons sometimes disturb the weather of March are almost unknown during April, and any storms which appear are almost invariably of local character, produced by the large contrasts of temperature which prevail between the heated plains on the one hand and the relatively cool mountain and sea-surfaces on the other. Under the influence of the steady increase of temperature, which is characteristic of this month, there ordinarily occurs a considerable decrease of pressure. This decrease varies directly with the changes of temperature,—being least in the extreme south, where the average rise of temperature is about 5°, and greatest in Upper and North-Western India, where the average rise of temperature is about 10°. The general distribution of pressure is similar in many respects to that obtaining in March, but the high readings, which in the earlier month are shown over the Punjab and Sind, disappear or are very much contracted in the later month. Pressure is high over the West Coast, over Ceylon, over the centre and south of the Bay, and over Tenasserim. From these regions it steadily decreases, and areas of low pressure are shown over the eastern portions of the Central Provinces, over the Gangetic plain, and over the Western desert.

Roughly speaking, there is then an area of deficient pressure over the whole of Northern and Central India and a general indraught of winds, circulating in the ordinary manner, towards this region. Within the low pressure area itself however, instead of the small air motion, which is the ordinary characteristic of such a distribution, there are strong north-westerly and westerly winds. These winds are the hot winds of the Indian plains. They spring up about 9 or 10 in the morning and blow with considerable force till 4 or 5 in the evening or later. The temperature distribution of April is very simple. Temperature is highest over the Deccan and the Central Provinces, whence it decreases in all directions. It is lowest in the north of the Punjab and at the head of the Assam Valley, between which places and the region of greatest heat there is a mean difference of about 15°.

The normal rainfall of April is greater than that of March over Bengal (except Behar) and over the Peninsula and Ceylon, but is less in Upper India and over the central parts of the country. The whole of the rainfall, except perhaps that in the extreme south, is mainly due to the occurrence of thunderstorms and nor'westers.

During the month under review the weather has been, as is usually the case, fairly quiet, the only disturbing features being local thunderstorms, and these have on the whole been less intense than normally, and much less than those which occurred during April 1888. The variations of pressure from the average have in general been slight. They comprise a slight deficiency over Burma, Bengal, Malabar, Sind, and the East of the Peninsula, and an excess elsewhere. There have been no travelling depressions of any importance during the past month, though over Sind and the Punjab tendencies favouring the formation of depressions appear to have existed, while the excessive heat which prevailed over parts of Bengal, the North-Western and Central Provinces during a part of the month resulted in low pressures over those regions.

*Temperature.*—The temperature changes during the month have been large, and the contrasts between different parts of the Indian region considerable. During the first few days there was a considerable excess over North-Western India and a considerable deficiency over Bengal, but a fall commenced in the extreme north-west on the 5th, and the high temperature area began an easterly movement, which eventually carried it to Bengal, and finally into Assam and Burma. On the 9th a fresh wave of high temperature was shown over the Western Punjab, and this wave in its turn marched across Northern India, though less distinctly than the former. On the 14th a third wave of high temperature appeared in the Indus Valley. By the 15th it had spread out eastward and embraced the whole of the Punjab, Western Rajputana, Sind and Guzerat, and from this date it continued to extend its limits till by the 20th it had spread over practically the whole of India. On the 21st the rear trough of the wave showed itself in the shape of deficient temperatures in the Indus Valley. The movement then became more rapid. The apex of the wave passed quickly eastward across Bengal to Burma; the trough passed quickly across Rajputana, &c., to the Central Provinces, and was followed by another wave of heat in the Punjab. On the 25th the mean temperature was 8·7° above the normal at Dera Ismail Khan, 11·6° below the normal at Jubbulpore, and 6° above the normal at Sibsagar, Thyetmyo, and Tounghoo. These conditions lasted in a modified degree till the 29th, when the trough over the

central parts of the country largely filled up and high temperatures were experienced everywhere. The hottest part of India absolutely was the Berars and the Deccan and, relatively to the average, Eastern and Lower Bengal.

*Rain.*—Except in Assam and Cachar, the normal average rainfall of April is a very small quantity. Yet over nearly the whole of Northern India, and also in the Deccan and Lower Bengal, even this small average was not reached. In the Peninsula and the central parts of the country the average was exceeded, and in Ceylon there was a considerable excess, owing largely to the exceptionally heavy fall which occurred in the extreme south on the 24th.

The following table shows the actual average rainfall and the normal rainfall of the month of the twenty-one districts into which the country is divided, so far as it is indicated by the telegraphic reports of a few stations in each district:—

| Districts. | No. of stations. | Normal average rainfall in April. | Actual average rainfall in April 1889. | Difference from the average in April 1889. |
|---|---|---|---|---|
| Punjab, West .. .. .. | 7 | 1·42 | 1·61 | +0·19 |
| „ East .. .. .. | 4 | 0·87 | 0·27 | —0·60 |
| North-Western Provinces, Trans-Gangetic .. | 7 | 0·42 | 0·04 | —0·38 |
| „ „ Cis-Gangetic .. | 3 | 0·12 | 0·27 | +0·15 |
| Behar .. .. .. | 2 | 0·17 | 0 | —0·17 |
| North Bengal .. .. .. | 3 | 2·15 | 1·16 | —0·99 |
| Assam—Cachar .. .. .. | 3 | 9·58 | 7·79 | —1·79 |
| Lower Bengal and Chutia Nagpur .. .. | 8 | 2·38 | 1·43 | —0·95 |
| Orissa—North Circars .. .. | 5 | 0·40 | 0·55 | +0·15 |
| Central Provinces, South .. .. | 7 | 0·18 | 0·96 | +0·78 |
| Berar—Khandeish .. .. .. | 2 | 0·01 | 1·15 | +1·14 |
| Rajputana, Central India, Saugor, and Nurbudda .. | 9 | 0·15 | 0·28 | +0·13 |
| Sind—Cutch .. .. .. | 3 | 0·17 | 0·43 | +0·26 |
| Guzerat .. .. .. | 3 | 0 | 0 | 0 |
| Konkan .. .. .. | 4 | 0·05 | 0·08 | +0·03 |
| Deccan—Hyderabad .. .. | 5 | 0·72 | 0·58 | —0·14 |
| Malabar .. .. .. | 5 | 1·87 | 3·21 | +1·34 |
| Mysore—Bellary .. .. .. | 4 | 1·17 | 2·49 | +1·32 |
| Carnatic .. .. .. | 6 | 0·79 | 2·89 | +2·10 |
| Lower Burma .. .. .. | 7 | 1·57 | 0·22 | —1·35 |
| Ceylon .. .. .. | 1 | 11·28 | 15·13 | +3·85 |

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